NOVEL COMPOUNDS THAT EXHIBIT SPECIFIC MOLECULAR RECOGNITION OF MIXED NUCLEIC ACID SEQUENCES AND BIND IN THE DNA MINOR GROOVE AS A DIMER

Abstract

Asymmetric derivatives of furamidines with one of the phenyl rings of furamidine replaced with a benzimidazole have been found by quantitative footprinting analyses to bind GC containing sites on DNA more strongly than to pure AT sequences. These compounds have been shown to bind in the minor groove at specific GC containing sequences of DNA in a highly cooperative manner as a stacked dimer. Compounds of the present invention find use in selectively binding mixed sequence DNA, and may also be used in methods of regulating gene expression, methods of treating opportunistic infections and cancer, as well as in methods of detecting certain sequences of DNA.